This matter is from the provisional and is to be added to the end of the specification. Another copy of this is enclosed where the new matter is underlined but these instructions are not on the top of the page. Another copy is also enclosed without underlining.

The inventions are to give 3D like effects onto surfaces such as TV and monitor screens, printed paper and other 2D media and all other 2D flat and curved surfaces.

It consists of a series of bumps and pits in the surface each pit or bump called hereinafter the part and the areas between the parts being covered in whole or part by a series of dots, which may be of varying shapes and colors.

One of the principles of operation is that people looking at different angles on the parts see different dots to give a 3D like effect. In Figure 42 **A** and **B** are pairs of eyes viewing the display surface.

The bumps here are covered with various dots, dots which could be pits or bumps themselves in any combination or such like. When people look from different angles they see a 3D like image because of the separation of the eyes.

In a closeup one can see the eyes see slightly different parts of the bump so that if for example the dots on the top are white going to black at the bottom then each eye gets a different color gradient looking at the bump according to the angle. This is seen in Figure 43.

When the bumps are small compared to the eyes e.g. like pixel size on a TV then the effect is of a different picture for each eye enough to give a 3D effect.

The parts can be fixed or set to move around, the surface can be flexed, or the parts to move in and out or change shape according to different effects. For example in a printing application we could print dots on a page as in Figure 44, inside a flat part or bump then put the page through an apparatus the pushed out the shapes in Figure 44 into a bump or down into a pit, or one could preprint various dots and render them onto a page by some affixing mechanism such as glue. This could be done with cloth or any other kinds of materials.

Bumps can be simulated in various ways. For example each part, such as in Figure 44 can have an overlay of a polarized piece of material so it only sends light in one direction exactly or approximately according to needs.

As the eye changes its angle more dots are seen and others fade from view. Alternatively shafts in flat or curved parts as shown let light along a tunnel where it emerges in a directional form like polarized or laser light, shown in Figure 45.

Another way is to use various laser like transmitters to direct light or emr up the tubes where it emerges more or less with little diffusion simulating polarized dots.

At the end of each tube could be phosphor dots like in a monitor or TV or small LCD like emitters or small laser like devices, or one devices that plays a beam across the entrances to the tubes or into the polarized dots or phosphor dots.

Somewhat like e.g. an electron gun in a TV. This device would also serve to cover the edges of tubes where the picture finishes, shown in Figure 46. Here the glass is thicker but by making tubes or such like with phosphor dots on one end the light is guided onto the parts of the screen where it is normally not possible to put the dots in a normal tube.

One can see these parts on the edge of the viewing screen of most TV's, see Figure 47. **A** represents phosphor dots, the tubes deliver the pixel data to the edge of the display. One can also put supports on the centre or somewhere of the tube and use these tubes to send the signal while strengthening the tube, see Figure 48.

The tubes can give the correct picture in the centre of the screen. These tubes may be empty or composed of some material, even polarized material of various kinds and ways. This method would enable TV tubes to be put closer together so the seam between them would not be as apparent.

In Figure 49 the centre dark line is eliminated by tubes directing light, even using optical fibres in construction. One can use these methods on large bulletin boards such as seen in football games where the parts (bumps and pits) are composed of say rotating colored

balls there are turned by some devices at the right angles. See Figure 50.

Liquid crystals and such like can also be used in the various parts in all these ways. Imprints of these bumps and pits could also be moulded onto surfaces with a colored dot printed at the same time or later.

Figure 51 shows moulds for making dots on surfaces and pits and bumps (parts) on surfaces.

This could be done e.g. on concrete plaster, metal. The dots could be colored or of different textures that appear to be of different colors, e.g. shiny as whitish and matt texture as dark.

To make the pictures or information to present in these and other methods there is the kind of camera like device, in that it is to collect the information in this way. There are several devices shown in Figure 52.

The lenses focus light from different perspectives and so overlay an image from two lenses onto the bumps and pits. The pumps and pits (or variations such as polarized dots leading to a kind of collection apparatus) collect information such as light through the lenses or lens like devices (could be plates with varying polarizations to focus light).

The light or various radiations or vibrations (e.g. sound waves) are directed to the receptors on the pits and bumps which are recorded in some format. When the information such as recorded light is fed back in a way like back through the receptors as emitters then a 3D image appears to be viewed, see Figure 53.

Many lenses can be used or collection apparatus such as radar dishes, see Figure 54. Vibrations such as radar or emf can be directed as shown.

Wave information from any angle is collected by various dots or receivers. When played back in dot like arrays a 3D like representation is gained. In the case of radar this can be even on one bump.

The bumps and pits can be of various shapes according to design needs, e.g. hyperbolic, parabolic, cycloidal. There can be any number of bumps and pits in any kind of array and of varying sizes.

Another example is of using receivers in the ground or underwater to receive sonic vibrations as with light vibrations to detect earth tremors and build up a 3D picture of their activity, or of fish movements or boating activity.

One could position receptors around phenomena such as storms or hurricanes and get a 3D picture of their shape and movement.

In computer or TV one can get 3D effects that could play 3D movies that could be viewed in color by having groups of dots, one red, one green, one blue, or other variations of frequencies. As in normal CCD devices or others one absorbs in the dots on bumps and pits varying frequencies more than others so as to receive information of different colors.

For example on a bump can be receptors that each is tuned to receive only red, green or blue and so when bumps replay information or signals they show color.

In Figure 55 each shape as in **A**, or dot is like red, green, and blue shapes which can be phosphor dots like TV, ends of fibre optic tubes and such like or polarized pieces on a flat surfaces to direct light only in certain directions.

All other variations on the themes of these devices are claimed, e.g. a flat or curved panel with a small lens in each pit that receives light from any angle and encodes it into the bump or pit's receptors and so when played back gives the desired effect.

The pits as reflectors and receptors collect light from all angles. These receptors then have their received information transferred to the corresponding bumps in various orientations to deliver the 3D like image. The receptors and bumps here can be of various shapes as well.

Another way is to have collectors in the surfaces of the bumps and pits which receive signals from more or less only various directions, see Figure 56. This information travels down tube like devices to be stored again as image information. Electronic eyes and ears could be made with these devices as well as memory storage of all kinds. One could encode CD burner and such like information onto

bumps and pits to be replayed with more information retrieval.

In effect then all kinds of devices that utilize these constructions to collect store and receive information of any kind are claimed.

Screens showing 3D information can be of any shape and size with bumps and pits of any shape and size e.g. walls could be covered with receptors to deliver an image, even chairs to simulate textures and images. Cloth could also be designed like this.

One way to render an image could be to play a laser or lasers onto the emitters in various ways, e.g in Figure 57. A screen could be composed of many of these devices.

In Figure 57 a laser could vibrate up and down to make the dot or dots of laser light go up and down (or any variation of movement) on the screen while the reflector mirrors or lenses vibrate from side to side (or any variation thereof) to thereby fill the screen.

If the signal varies in intensity (analogue) or is of a digital signal images will appear on the screen akin to a TV image or such like. Various methods of moving the laser to cover the screen are also claimed. Also the laser or other devices can be used to send signals along optical fibres or such like to a screen.

Optical fibres can be attached to a screen, the other ends can be affixed to various TV screens.

See Figure 58. The idea of this is that TV tubes or emitters of any kind can be placed in other locations and their signals travel up the optical fibres or such like to the big screen.

In this way a large screen image could be composed of signals from many small emitters or TV or monitor tubes which could be placed in a separate box and the screen which could be thin could be hung on a wall or such like.

These emitters could be in any shape or size. 3D wall panels could be arranged in cinemas on each wall and underneath for viewing 3D at any angle e.g. one could have a ball of sensors trailing behind a plane or such like and the image collected and displayed in a circular room which gives views from all angles.

Using these devices software could be designed with 3D icons that one could arrange on a desktop or such like and turn around or move between to look up icons and information.

A program such as windows could be a similar design but in 3D or even Hilbert Space where one could view any 2 or 3 dimensions at a time e.g. in a spreadsheet or game one could change to looking at any 2 or 3 parameters at a time.

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This is to be inserted with the brief description of the drawings on Page 10 under line 9. This would follow on with the section already there entitled "brief description of the drawings". Also enclosed is a copy of this not underlined, and a copy of that below underlined separate from these instructions.

Figure 42 shows different viewpoints to view the display surface.
Figure 43 shows different eyes seeing different parts of the surface.
Figure 44 shows dots on a page.
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Figure 49 shows the centre dark line is eliminated by tubes.
Figure 50 shows rotating coloured balls on a surface.
Figure 51 shows mould for making dots on surfaces.
Figure 52 shows a camera like device.
Figure 53 shows a 3D image apparatus.
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Figure 55 shows shapes on a screen.
Figure 56 shows collectors on a surface.
Figure 57 shows a laser creating an image.
Figure 58 shows emitters sending data up optic fibres.

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